**Third Grade Math Block**

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| **Date:** | | **Unit: Exploring Multiplication, Division, and Area** | | |
| **Objective 2.17:**  SWBAT solve grouping division problem by modeling with tiles and number lines. | | **Content Standard(s):**   * [3.OA.A.2](http://www.corestandards.org/Math/Content/3/OA/A/2) Interpret whole-number quotients of whole numbers, e.g., interpret 56 ÷ 8 as the number of objects in each share when 56 objects are partitioned equally into 8 shares, or as a number of shares when 56 objects are partitioned into equal shares of 8 objects each. *For example, describe a context in which a number of  shares or a number of groups can be expressed as 56 ÷ 8*.   [3.OA.A.3](http://www.corestandards.org/Math/Content/3/OA/A/3) Use multiplication and division within 100 to solve word problems in situations involving equal groups, arrays, and measurement quantities, e.g., by using drawings and equations with a symbol for the unknown number to represent the problem.1*.* | | |
| **Mathematical Practice(s):**  MP.4 Model with Mathematics  MP.6 Use Appropriate Tools Strategically  MP.7 Look for and make use of structure. | | |
| **Big Idea(s):**  Division can be used to find the size of each group when a starting amount is shared equally.  Division is the inverse of multiplication. | | **Essential Question(s):**  What is division? What do the numbers in a division equation mean?  How are division and multiplication related?  How can multiplication facts help us divide? | | |
| **Materials:**  Tiles  String (30 inches per student)  Scissors  Rulers  Conceptua  <http://www.conceptuamath.com> | | **Vocabulary:**  Division  Equal Share  Dividend  Divisor  Quotient | | |
| **Main Lesson** | | | | |
| **Lesson Launch:**  Provide each student with 24 tiles.  Ask students to use the tiles to figure out how many rows of three there can make with the nine stamps. Ask students to describe to their partner how they solved the problem. (Most will create the array with the tiles.)  Now, ask students to use the 24 tiles to figure out how many groups of 6 they can make out of 24.  **Active Engagement : (Lesson Task, Problems, Activities, Explicit Instruction, Guided Practice)**:  Open Conceptua Grouping Division Tool  **Problem 1:**  Will has 30 inches of ribbon to make bows. How many bows can he make if each bow needs 5 inches of ribbon?  ***\*You may opt to first provide each student with 30 inches of string and have them partition or cut the string into 5 inch pieces before modeling on number line tool***   * Read the question “How many groups of five feet are contained in 30 feet?” * Think aloud, “Well, I know that I’m using groups of five, so my first step will be to build a group of five.” * “Now, let’s pull this group of five down and count together how many groups of five make 30 feet” * Count together 1, 2, 3, 4, 5, 6, * Whisper to your partner how we should fill in the blanks \_\_\_ contains \_\_\_ groups of \_\_\_. * 30 contains 6 groups of five.   **Problem 2:** Michelle ran 40 miles. She ran 5 miles each week. How many weeks did she run?   * Read the problem together, * Think aloud, “How many groups of 5 can be made from 40?” * Think aloud, Let’s build this problem. I have 40, and I need to make groups of five. Watch me press the plus button to build a group of 5. * Now, I need to pull down the groups of 5 and count how many I have. * 8. * So, 40 ÷ 5 = 8. * Ask students, why is it 40 divided by 5, instead of 40 divided by 8?   **Problem 3:** Michelle’s mom also ran 40 miles. She ran 8 miles each week. How many weeks did she run?   * Read the problem together, * Think aloud, “How many groups of 8 can be made from 40?” * Think aloud, Let’s build this problem. I have 40, and I need to make groups of 8. Watch me press the plus button to build a group of 8. * Now, I need to pull down the groups of 8 and count how many I have. * 5. * So, 40 ÷ 8 = 5. * Ask students, why is it 40 divided by 8, instead of 40 divided by 5?   **Problem 4:** Jackie has 30 feet of ribbon to make bows. How many bows can she make if each bow needs 10 feet of ribbon?   * Read the problem together, * Think aloud, “How many groups of 10 can be made from 30?” * Think aloud, Let’s build this problem. I have 30, and I need to make groups of 10. Watch me press the plus button to build a group of 10. * Now, I need to pull down the groups of 10 and count how many I have. * 3. * So, 30 ÷ 10 = 3.   **Problem 5-7** Work with a partner now to….   * Use the number line below to show how many groups of 4 are in 20? * Use the number line below to show how many groups of 6 are in 30? * Use the number line below to show how many groups of 4 are in 24? * Come up with a grouping division story for each problem.   **Connections:**  d.) Show Call to share and discuss student division stories and number line models   * Have students explain their thinking about the problem with the class. * Today we learn to how to find the number of groups when a dividend is grouped equally. | | | | |
| **Practice Opportunity** | | | | |
| **IP:**  Grouping Division Practice Set C | **Extension:**  I love Skittles and cupcakes! I decided to bake some cupcakes. I put a bag of Skittles, 45 in all, into my batter and baked a dozen cupcakes. Each cupcake had at least three Skittles and no more than five. What are the different possible combinations of Skittles found in each of the cupcakes? | | | **Modification:**  Use cube trains to model problems; students will need 2 different colors of cubes. For example, to find how many groups of 5 are in 30, put together 5 cubes of one color and then 5 cubes of another color. Continue to alternate colors until 30 cubes compose the cube train. |
| **Lesson Questions/Prompts:**  How can you use multiplication to solve this problem?  How can you use division to solve this problem?  Why do you think it is the most efficient strategy?  What does the \_\_\_ tell you in this problem?  Where is the dividend in this model? Where is the divisor in this model? Where is the quotient in this problem?  What does it mean when we say multiplication and division are inverse operations? | | | **Assessment:** | |
| **Anticipated Roadblock/Misconception** | | | **Strategy** | |
| Students reverse the divisor and the quotient | | | Have anchor chart or word wall cards with division terms labeled and visual model  Purposefully make this error when modeling  Where is the \_\_\_\_ in the model? | |
| Students reverse the order of the factors | | | Does the model show us \_\_\_ groups of \_\_\_\_ or \_\_\_ groups of \_\_\_\_? | |
| Students drag circles one by one | | | Do you think you have enough to put 2 in each bin? Why? How about 3 in each bin? | |
| Students reverse the order of the dividend and divisor | | | Have anchor chart or word wall cards with division terms labeled and visual model  Purposefully make this error when modeling  Where is the \_\_\_\_ in the model? | |
| **Wrap Up** | | | | |
| **Lesson Closure:**  Ask students to return back to the question 24 ÷ 6 = \_\_\_\_. Ask students to discuss the most efficient strategy to solve this problem. | | | | |
| **Evidence of Success/Follow-up:** | | **Homework:** | | |